EPA Form 2F-IVB

Significant Materials

Significant materials are handled, treated, stored or disposed of at the Yorktown Terminal. The Terminal maintains Standard Operating Instructions (SOIs) that operators follow to prevent significant materials from being exposed to stormwater runoff. Stormwater collection systems in the Terminal are engineered so that where a potential for uncontrolled exposure exists, stormwater is handled in such a way that pollutants associated with materials, are removed to the extent practicable prior to being discharged to surface waters. Terminal stormwater collection systems are described in ***Attachment 2F-IVC.***

The significant materials stored in the greatest quantities at the Terminal are petroleum crude oil, refined petroleum intermediates, and finished liquid and gaseous petroleum products. These materials, as well as petroleum additives, are stored in aboveground storage tanks (with fixed or floating roofs) or drums and are transferred in piping.

Dikes are provided around field-constructed aboveground storage tanks in which bulk crude oil, refined petroleum intermediates, and finished petroleum products are stored. Each of these dikes has two drains that are equipped with butterfly- and/or gate-type valves. Water that collects inside the dikes is visually inspected prior to being drained. Assuming there is no sheen or other indication of contamination, the water is drawn off to the ditch system which leads the storm water settling basin. Should visible signs of contamination be observed, the water is tested to determine whether it is suitable for discharge to Hampton Roads Sanitation District (HRSD), or if it must be transferred for off-site disposal. In addition, the source of the oil or other contamination is determined, repairs or adjustments are made to stop the release, and contaminated soils in the area are remediated and/or removed.

Currently, stormwater from the aboveground storage tanks floating roofs is collected and transferred to HRSD for treatment, since there is the potential for contamination by leaking roof drains. Upon start-up of the new Wastewater Treatment Plant, stormwater from aboveground storage tank floating roofs will be treated and discharged through Outfall 500. Stormwater from fixed roof tank roofs is accumulated inside tank dikes and is managed along with other stormwater from the tank dike areas.

Piping is present throughout the Terminal. In the areas indicated on the stormwater drainage map, provided in ***Attachment 2F-III***, secondary containment is provided, and stormwater from these areas is collected and transferred to HRSD. Upon start-up of the new Wastewater Treatment Plant, stormwater from these areas will be treated and discharged through Outfall 500. All other piping is located to ensure stormwater is contained by the surface ditch system and conveyed to the settling basin for treatment prior to discharge through Outfall 002.

In general, areas of the Terminal that have the potential to experience spills of significant materials or residual hydrocarbons from facility activities are paved. Currently, stormwater from these areas is collected and transferred to HRSD. Upon start-up of the new Wastewater Treatment Plant, stormwater from these areas will be treated and discharged through Outfall 005. Examples of areas that drain to the water treatment plant and HRSD / Outfall 005 include:

- ⇒ **Dock Transfer Manifolds:** The areas of the dock in which loading hose connections are made to vessels are provided with collection systems and/or sumps to capture stormwater which might have contacted hydrocarbons and convey it to the water treatment plant.

- ⇒ **Marketing Terminal Truck Loading Rack:** Similar to the dock, the areas in which loading hose connections are made to tank trucks at the marketing terminal are paved and graded to drain stormwater to the water treatment plant.

- ⇒ **Rail Car Loading Racks:** Similar to the dock and truck loading rack, the rail car loading racks, at which liquefied petroleum gas, gasoline, distillates, and ethanol may be transferred to and from rail cars, are graded to drain stormwater to the water treatment plant.

⇒ **Pumphouse Blending Manifold:** The pumphouse blending manifold is the area in which the pumps and valves that move and direct oil throughout the Terminal are located. Due to the presence of a many valves and flanges, this area is paved and graded to drain stormwater to the water treatment plant.

⇒ **Coker, Combination Unit, Ultraformer, ULSD Unit, Hydrogen Plant, Sulfur Recovery Unit, Gasoline Desulfurization Unit, Power Station, Nitrogen Plant, and Water Treatment Plant Process Units:** Dismantling of these areas is currently in progress. When the refinery was operating, these areas contained high concentrations of piping, valves, flanges, pumps, and vessels. Due to the increased potential for the presence or release of hydrocarbons or chemicals, these areas were paved and graded or equipped with curbing to channel stormwater to the former water treatment plant. Stormwater from these areas may either be collected and transferred for water treatment, or channeled to the stormwater channel to the settling basin prior to discharge to Outfall 002.

⇒ **Sludge Processing Area**: Dismantling of this area has been completed, and stormwater from this location is routed to the settling basin prior to discharge via Outfall 002.

⇒ **Coke Yard:** Since converting to a Terminal, the coke in this area has been removed and this area is used as a laydown area for the refinery dismantling project. Water that collects in this area dikes is visually inspected prior to being drained. Assuming there is no sheen or other indication of contamination, the water is drawn off to the ditch system which leads the settling basin prior to discharge via Outfall 002. Should visible signs of contamination be observed, the water is tested to determine whether it is suitable for discharge to HRSD, or if it must be transferred for off-site disposal.

In all cases when the stormwater needs to be treated prior to discharge, the stormwater will be piped for treatment either by HRSD or the future on-site treatment plant prior to discharge to Outfall 005. Otherwise the stormwater will be channeled to the on-site settling basin for subsequent discharge to Outfall 002.

The RCRA Solid Waste Management Units (SWMUs) and the Area of Concern (AOC) at the Terminal have been remediated under the Corrective Measures Implementation Order (EPA 2006). The stormwater from these areas is managed as described below. Detailed information on the management of stormwater for the SWMUs and AOC at the Terminal is included in the following documents:

- Risk Assessment and Corrective Measures Study Report prepared for EPA Region III in October 2001
- Corrective Measures Implementation Design – Phase 1, prepared for EPA Region III in February 2007
- Revised Corrective Measures Implementation Work Plan, prepared for the EPA Region III in November 2008
- Corrective Measures Implementation Design – Phase II, approved by EPA Region III in January 2010
- Site Plan Submittal, prepared for York County Virginia, submitted October 5, 2012 that contains the updated Stormwater Report

These and other reports are maintained on file in the Terminal's Environmental Department. Below is a current status of each if the SWMUs and the AOC.

⇒ **SWMU No. 1: Landfarm 10, CAMU West.** SWMU 1 was converted to CAMU West during the construction activities completed in September 2011 (see Phase II CMI Report, 28 November 2011 with revisions submitted to EPA October 2012). CAMU West has an impermeable cover that prevents precipitation water from contacting impoundment materials (i.e. precipitation is non-contact water). Precipitation falling onto CAMU West is drained to perimeter channels that flow into the stormwater settling basin prior to discharge via Outfall 002.

⇒ **SWMU No. 2: Landfarm 11.** Precipitation that falls on this area is considered non-contact water and is conveyed through the Terminal's surface water ditch system to the stormwater settling basin and discharges through Outfall 002.

⇒ **SWMU No. 3: Landfarm 12, CAMU East.** SWMU 3 was converted to CAMU East during the construction activities completed July 2008. CAMU East has an impermeable cover that prevents precipitation water from contacting impoundment materials (i.e. precipitation is non-contact water). Precipitation falling onto CAMU East is drained to perimeter channels that flow into the stormwater settling basin prior to discharge via Outfall 002.

⇒ **SWMU No. 4A: Industrial Waste (Asbestos) Landfill.** All materials are covered following placement in the landfill. Therefore, precipitation that falls into this area is normally considered non-contact water that may be conveyed through the Terminal's surface water ditch system to the stormwater settling basin and discharges through Outfall 002.

⇒ **SWMU No. 4B: Industrial Waste Landfill.** Precipitation that falls into this area is considered non-contact water and is conveyed through the Terminal's surface water ditch system to the stormwater settling basin and discharges through Outfall 002.

⇒ **SWMU No. 5 North and South:** This SWMU was remediated during the CMI Phase I and II construction activities. Therefore precipitation that falls on this area is considered non-contact water and is conveyed through the Terminal's surface water ditch system to the stormwater settling basin and discharges through Outfall 002.

⇒ **SWMU No. 6:** This area was remediated during the CMI Phase II construction activities. Stormwater from SWMU No. 6 drains in sheet flow to the east in the direction of Bull Creek.

⇒ **SWMU No. 7: Equalization Basin/Stormwater Retention Pond/Filter Backwash Pond.** These areas were remediated during the CMI Phase II construction activities. Therefore precipitation that falls on these areas is considered non-contact water and is conveyed through the Terminal's surface water ditch system to the stormwater settling basin and discharges through Outfall 002.

⇒ **SWMU No. 7: Former API Separator.** The material from this area was removed and included in the construction of CAMU East. This area was capped and construction was completed in 2008. Precipitation that falls on this area is non-contact water and is conveyed through the Terminal's surface water ditch system to the stormwater settling basin and discharges through Outfall 002.

⇒ **SWMU No. 8: Leaded Tank Bottom Disposal Area.** Material associated with this SWMU was remediated during the CMI Phase II construction activities. This area is surrounded by perimeter dikes and stormwater is released in accordance with Item 2(b) above.

⇒ **SWMU No. 9: Unleaded Tank Bottom Disposal Area.** Material associated with this SWMU was remediated during the CMI Phase II construction activities. This

area is surrounded by perimeter dikes and stormwater is released in accordance with Item 2(b) above.

⇒ **SWMU No. 10: Former Heat Exchanger Cleaning Pad.** This SWMU was remediated during the CMI Phase II construction activities. Therefore precipitation that falls on this area is considered non-contact water and is conveyed through the Terminal's surface water ditch system to the stormwater settling basin and discharges through Outfall 002.

⇒ **SWMU No. 11: Container Storage Area.** This area was capped with asphalt paving during the CMI construction in 2007. Precipitation that falls on this area is considered non-contact water and is conveyed through the Terminal's surface water ditch system to the stormwater settling basin and discharges through Outfall 002.

⇒ **SWMU No. 12: Hazardous Material Storage Building and Drum Storage Area.** This area was also capped during the CMI construction in 2007 and therefore can drain without further treatment. Precipitation that falls on this area is considered non-contact water and is conveyed through the Terminal's surface water ditch system to the stormwater settling basin and discharges through Outfall 002.

⇒ **AOC No. 1: North Coker Ditch.** This Area of Concern was remediated during the CMI Phase II construction activities. Therefore precipitation that falls on this area is considered non-contact water and is conveyed through the Terminal's surface water ditch system to the stormwater settling basin and discharges through Outfall 002.

Significant materials are also present at the 90-day hazardous waste drum accumulation area (waste storage building) north of the Sulfur Recovery Unit (SRU). There is no stormwater runoff from the hazardous waste drum accumulation area, since it is enclosed. Stormwater from the concrete pad on which hazardous waste roll-off boxes may be stored nearby accumulates in a sump until it is removed via vacuum truck for treatment either by HRSD or by the future on-site treatment plant prior to discharge to Outfall 005.

Stormwater from the exposed area in which nonhazardous waste drums are accumulated is channeled into the stormwater settling basin and discharged through Outfall 002. Hazardous and nonhazardous wastes are stored in drums or roll-off boxes to prevent contact with stormwater. Spills of hazardous and nonhazardous wastes from these containers are contained and cleaned up immediately. Recovered materials are properly contained, classified, inventoried and managed as either hazardous or non-hazardous waste until they are transferred off-site for disposal or recycling.

Construction materials are stored indoors in warehouses or outside in open material storage yards. Typical construction materials present in open material storage yards at the Terminal include clean heat exchanger bundles, piping, valves, conduit, structural steel and other inert materials. Stormwater from these areas is assumed to be non-contact and is channeled to the settling basin and discharged through Outfall 002.

To control the growth of nuisance vegetation, herbicides are periodically used throughout the Terminal in catchments and other storm water drainage areas. The frequency of use of the herbicides varies seasonally depending upon the rate of vegetation growth. Herbicides are evaluated for potential environmental impacts prior to usage in the Terminal. No herbicides are used at the Terminal that contains any water priority chemicals. Herbicides are used in strict compliance with label instructions. Stormwater runoff samples collected from Outfalls 101 and 002 in 1999, 2004, and 2009 were analyzed for the presence of pesticides and herbicides listed in EPA Form 2F. None were detected.

Soil conditioners and fertilizers are not used in the Terminal. Fertilizers are not used in order to ensure compliance with the total phosphorus limits imposed on Outfall 002 effluent.